

PLUTONIUM FUTURES—THE SCIENCE PRELIMINARY PROGRAM

SUNDAY, JULY 9, 2000

Conference Registration

La Fonda Hotel Mezzanine
12:00–8:00 P.M.

Session Chair: David L. Clark
La Fonda Hotel, 1:30–5:00 P.M.

Welcome

Fundamentals of Nuclear and Radiochemistry
Introduction to Chemistry and Physics of Plutonium
Overview of the Nuclear Fuel Cycle

Tutorial Session

La Fonda Hotel Mezzanine, 6:00–8:00 P.M.

MONDAY, JULY 10, 2000

Conference Registration

La Fonda Hotel

Plenary Session

Session Co-Chairs: Timothy G. George & Bruce Matthews
La Fonda Ballroom, 8:00 A.M.–12:00 P.M.

John Browne

Director, Los Alamos National Laboratory
Welcome

Nikolai Ponomarev-Stepnoi

Academician, Russian Research Centre, Kurchatov Institute

Ernest J. Moniz

Undersecretary of Energy, U.S. Department of Energy

BREAK

Leo Brewer

Department of Chemistry, University of California
“How to Develop New Materials”

Vladimir Onoufriev

International Atomic Energy Agency
“Status and Trends in Plutonium Recycling in Nuclear Power Reactors”

Siegfried S. Hecker

Los Alamos National Laboratory
“Fundamentally, Why Is Plutonium Such an Unusual Metal?”

**I. Materials
Science/
Nuclear Fuels**

La Fonda Ballroom, 1:30–5:00 p.m.

Self-Irradiation of Pu, Its Alloys and Compounds

L. F. Timofeeva
(GNC RF A.A. Bochvar's VNIINM, Russia)

Modeling of Delta-Phase Stabilization and Compositional Homogenization in Pu-1 Wt. % Ga Alloys

J. N. Mitchell, F. E. Gibbs, T. G. Zocco, R. A. Pereyra
(Los Alamos National Laboratory)

Radiation Resistance of Gadolinium Zirconate Pyrochlore

S. X. Wang¹, L. M. Wang¹, R. C. Ewing¹, K. V. Govidan Kutty², W. J. Weber³
(¹University of Michigan, ²Indira Gandhi Centre for Atomic Research, India,
³Pacific Northwest National Laboratory)

Plutonium Stabilization in Zircon: Effects of Self-Radiation

W. J. Weber¹, N. J. Hess¹, R. E. Williford¹, H. L. Heinisch¹, B. D. Begg², S. D. Conradson³, R. C. Ewing⁴
(¹Pacific Northwest National Laboratory, ²Australian Nuclear Science and Technology Organisation, Australia, ³Los Alamos National Laboratory, ⁴University of Michigan)

BREAK

Inert Matrix Fuels for Incineration of Plutonium and Transmutation of Americium

Hj. Matzke
(European Commission, Joint Research Centre, Institute for Transuranium Elements, Germany)

Capability of the MIMAS Process to Convert the Stockpiles of Separated Plutonium into MOX Fuel for Use in LWRs

P. Deramaix, Y. Vanderborck, W. Couwenbergh
(Belgonucleaire S.A.)

Some Less Conventional Options for Plutonium Disposal

W. Stoll
(Germany)

Panel Chair: Paul Cunningham
La Fonda Ballroom, 7:00–9:00 p.m.

TUESDAY, JULY 11, 2000

La Fonda Ballroom, 8:30 a.m.–12:00 p.m.

The Electronic Structure and Elastic Properties of the Actinide Chalcogenides

(U,Np,Pu,Am): The Puzzle of AmTe
P. Wachter¹, M. Filzmoser¹, J. Rebizant²

(¹Laboratorium für Festkörperphysik, ETH Zürich, Switzerland
²European Institute for Transuranium Elements, Germany)

Phase Transitions in Plutonium: New Insights from Diffraction

A. C. Lawson¹, B. Martinez¹, J. A. Roberts¹, R. B. Von Dreele¹, J. W. Richardson, Jr.², A. Mehta³, J. Arthur³
(¹Los Alamos National Laboratory, ²Argonne National Laboratory,
³Stanford Synchrotron National Laboratory)

**Plenary Speakers & Invited Guests
Panel Discussion —All Participants**

II. Condensed Matter Physics

Magnetic Properties Of $\text{Pu}_{(1-x)}\text{Am}_x$ Solid Solutions
M. Dormeval¹, N. Baclet¹, J. Fournier²
(¹CEA-Centre de Valduc, France, ²Université Joseph Fourier LEG-INPG, France)

X-ray Magnetic Scattering from Transuranium Systems
G. H. Lander¹, D. Mannix^{1,2}, R. Caciuffo³, N. Bernhoeft⁴, P. Normile⁵,
W. G. Stirling⁵, E. Lidström², A. Hiess⁶, C. Vettier^{2,6}, F. Wastin¹, and J. Rebizant¹.
(¹European Commission, JRC, Institute for Transuranium Elements, Germany, ²European Synchrotron
Radiation Facility, France, ³Università di Ancona, Italy, ⁴Dépt. de Recherche Fond. sur la Matière
Condensée, France, ⁵Physics Dept., UK, ⁶Institut Laue Langevin, France)

BREAK

**The Stabilization of fcc Plutonium: A Solid-State-Solution-Like Phase of
Stable and Fluctuating Configuration Plutonium**
B. R. Cooper
(West Virginia University)

Electronic Structure of α - and δ -Pu from PES Measurements
A. J. Arko, J. J. Joyce, L. Morales, J. Wills, J. Lashley
(Los Alamos National Laboratory)

Resonant Ultrasound Studies of Pu
A. Migliori, J. P. Baiardo, T. W. Darling, F. Friebert, B. Martinez, H. Roder, D. A. Dimitrov
(Los Alamos National Laboratory)

Poster Session

Session Co-Chairs: Sandra Mecklenburg & David E. Hobart
La Fonda Santa Fe Room, New Mexico Room, & Mezzanine, 1:30–5:00 P.M.

WEDNESDAY, JULY 12, 2000

La Fonda Ballroom, 8:30 A.M.–12:00 P.M.

**Aquatic Chemistry of Actinides: Is a Thermodynamic Approach Appropriate
to Describe Natural Dynamic Systems?**

J. I. Kim
(Forschungszentrum Karlsruhe, Institut für Nukleare Entsorgungstechnik, Germany)

Sorption of Plutonium onto Clinoptilolite (Zeolite) Colloids
N. L. Hakem, A. Brachmann, M. Zavarin, A. B. Kersting
(Lawerence Livermore National Laboratory)

**Actinide (Pu, U) Interactions with Aerobic Soil Microbes and Their Exudates:
Fundamental Chemistry and Effects on Environmental Behavior**
M. P. Neu, C. E. Ruggiero, M. T. Johnson, J. R. Fairlee, J. H. Matonic, L. A. Vanderberg,
L. E. Hersman, L. He, M. M. Cox, D. J. Chitwood, P. D. Gladden, G. L. Wagner
(Los Alamos National Laboratory)

The Interaction of Plutonium with Bacteria in the Repository Environment
J. B. Gillow¹, A. J. Francis¹, D. A. Lucero², H. W. Papenguth²
(¹Brookhaven National Laboratory, ²Sandia National Laboratories)

BREAK

**Transuranium Removal from Hanford High Level Waste Simulants
Using Sodium Permanganate and Calcium**

W. R. Wilmarth, S. W. Rosencrance, C. A. Nash, F. F. Fonduer, D. P. DiPrete, C. C. DiPrete
(Savannah River Technology Center, Westinghouse Savannah River Company)

**Radiolysis of Hexavalent Plutonium in Solutions of Uranyl Nitrate
Containing Fission Product Simulants**

P. J. W. Rance¹, B. Ya. Zilberman², G. A. Akopov²
(¹British Nuclear Fuels, Sellafield, Seacastle, Cumbria, UK, ²V.G. Khlopin Radium Institute,
2nd Murinsky Prospekt, St. Petersburg, Russia)

**Contribution of the Surface Contamination of Uranium-materials on the Quantitative Analysis
Results by Electron Probe Microbeam Analysis**

O. Bonino¹, C. Fournier¹, C. Merlet², C. Fucili¹, O. Dugne¹
(¹DCC/DTE/SIM – CEA Valrho BP 111, France, ²ISTEEM, Université de Montpellier II, France)

**IV. Actinides/
Processing**

La Fonda Ballroom, 1:30–5:00 p.m.

Oxidation/Reduction of Multivalent Actinides in the Subsurface

D. T. Reed¹, B. E. Rittman², S. B. Aase¹, A. J. Kropf¹

(¹Argonne National Laboratory, ²Northwestern University, Evanston, IL)

Gas-Phase Plutonium Oxide Cluster Ions and Initial Actinide Ion Trapping Experiments

J. K. Gibson, R. G. Haire, D. C. Duckworth

(Oak Ridge National Laboratory)

Actinide Science with Soft X-ray Synchrotron Radiation

D. K. Shuh

(The Glenn T. Seaborg Center, Berkeley)

**Recent Achievements in the Development of Partitioning Processes of Minor Actinides from Nuclear
Wastes Obtained in the Frame of the NEWPART European Programme (1996-1999)**

C. Madic¹, M. J. Hudson², J. O. Lijenzen³, J. P. Glatz⁴, R. Nannicini⁵, A. Facchini⁶,
Z. Kolarik⁷, R. Odoj⁸

(¹CEA/Saclay, France, ²University of Reading, ³Chalmers University of Technology, ⁴ITU, JRC, Karlsruhe,
⁵ENEA, Ispra, Italy, ⁶Politecnico Di Milano, ⁷TNE, KFK, Karlsruhe, Germany, ⁸ISR, FZJ, Juelich,
Germany)

BREAK

Actinide Chemistry: From Test Tube to \$B Plant – A BNFL Perspective

P. Parkes

(British Nuclear Fuels)

High Level Waste Partitioning Studies at the Research Centre Jülich

U. Wenzel

(Forschungszentrum Juelich - Institute for Safety Research and Reactor Technology
Section for Nuclear Waste Management)

New Nuclear Safe Plutonium Ceramic Compositions with Neutron Poisons for Plutonium Storage

B. A. Nadykto¹, L. F. Timofeeva²

(¹RFNC-VNIIEF, Russia, ²GSCRF-VNIINM, Russia)

**Conference
Banquet**

La Fonda Hotel, 6:30–8:30 P.M.

“Plutonium, Nonproliferation, and the Future of Nuclear Power”

J. P. Holdren

(Teresa and John Heinz Professor of Environmental Policy at the Kennedy School of Government and Director of the Science, Technology, and Public Policy Program, Harvard University)

THURSDAY, JULY 13, 2000

**V. Actinides/
TRU Wastes**

La Fonda Ballroom, 8:30 A.M.–12:00 P.M.

**Theoretical Predictions of Hydrolysis and Complex Formation
of the Heaviest Elements**

V. Pershina

(Institut für Kernchemie, Universität Mainz, Germany)

**New Field of Actinides Solution Chemistry; Electrochemical Study on Phase Transfer
of Actinide Ions across Aqueous/Organic Solutions Interface**Y. Kitatsujii¹, H. Aoyagi¹, Z. Yoshida¹, S. Kihara²(¹Advanced Science Research Center, Japan Atomic Energy Research Institute, Japan, ²Department of Chemistry, Kyoto Institute of Technology, Japan)**Extraction of Lanthanides and Actinides from H. A. Waste by Calix[4]Arenes Bearing CMPO Units**

J. F. Dozol, A. Garcia Carrera, H. Rouquette

(DCC /DESD / SEP / LPTE, CEA Cadarache, France)

Two New Insoluble Polymer Composites for the Treatment of LLW:**1. Polypyrrole Doped by UO₂²⁺ Complexing Polyanions 2. UO₂²⁺ Complexing Sol-gel Based Compos-
ites. Stability Constants, Leaching Tests, Alpha and Gamma Irradiation**D. Leroy¹, L. Martinot¹, F. Caprasse¹, C. Jérôme², R. Jérôme²(¹Coordination and Radiochemistry, University of Liège, Belgium, ²Center for Education and Research on Macromolecules (CERM), University of Liège, Belgium)

BREAK

**Waste Forms from the Electrometallurgical Treatment of DOE Spent Fuel:
Production and General Characteristics**R. W. Benedict¹, S. G. Johnson¹, D. D. Keiser¹, T. P. O'Holleran¹, K. M. Goff¹, S. McDeavitt², W. Ebert²(¹Argonne National Laboratory-West, ²Argonne National Laboratory-East)**Plutonium and Uranium Disposition in a Sodalite/Glass Composite Waste Form via XAFS**

M. K. Richmann, A. J. Kropf, D. T. Reed, S. B. Aase,

M. C. Hash, L. Putty, D. Lexa.

(Argonne National Laboratory, Chemical Technology Division)

Conference Rapporteur: Darleane Hoffman
(Lawrence Berkeley National Laboratory)
La Fonda Ballroom, 11:30 A.M.–12:00 P.M.**Conference
Summary and
Assessment**

Poster Session Presentations

Session Co-Chairs: Sandra Mecklenberg & David E. Hobart
 La Fonda Hotel Santa Fe Room, New Mexico Room, & Mezzanine, 1:30–5:00 P.M.

Materials Science

- 1. XANES and EXAFS Studies of Plutonium (III, VI) Sorbed on Thorium Oxide.**
 R. Drot¹, E. Ordóñez-Regil¹, E. Simoni¹, Ch. Den Auwer², Ph. Moisy²
 (¹Université Paris Sud, France, ²CEA Marcoule, DCC/DRRV/SEMP, France)
- 2. Effects Of Fission Product Accumulation in Cubic Zirconia**
 L. Wang, S. Wang, S. Zhu, R. Ewing
 (University of Michigan)
- 3. Identification of a Physical Metallurgy Surrogate for the Plutonium-1 Wt% Gallium Alloy**
 F. Gibbs
 (Los Alamos National Laboratory)
- 4. Innovative Concepts for the Plutonium Facilities at La Hague**
 B. Gillet¹, F. Drain², A. Gresle²
 (¹COGEMA, France, ²SGN, France)
- 5. Anisotropic Expansion of Pu Through the α - β - γ Phase Transitions While Under Radial Compressive Stress**
 D. R. Spearing, D. K. Veirs, F. C. Prenger
 (Los Alamos National Laboratory)
- 6. Contribution of Water Vapor Pressure to Pressurization of Plutonium Dioxide Storage Containers**
 D. K. Veirs, J. S. Morris, D. R. Spearing
 (Los Alamos National Laboratory)
- 7. Surveillance of Sealed Containers with Plutonium Oxide Materials**
 L. A. Worl, J. M. Berg, D. Ford, D. D. Hill, M. Martinez, J. McFarland, J. Morris, D. Padilla, C. Prenger, K. Rau, C. Smith, D. K. Veirs
 (Los Alamos National Laboratory)
- 8. PuO_2 Surface Catalyzed Reactions: Recombination of H_2 and O_2 and the Effects of Adsorbed Water on Surface Reactivity**
 L. Morales
 (Los Alamos National Laboratory)
- 9. Kinetics of the Reaction Between Plutonium Dioxide and Water from 25 to 350°C: Formation and Properties of the Phase PuO_{2+x}**
 L. Morales¹, J. Haschke², T. Allen¹
 (¹Los Alamos National Laboratory, ²Actinide Consulting)
- 10. A Conceptual and Calculational Model for Gas Formation from Impure Calcined Plutonium Oxides**
 J. L. Lyman, P. G. Eller
 (Los Alamos National Laboratory)
- 11. Status of the Pit Disassembly and Conversion Facility**
 W. T. Wood, L. T. Christensen
 (Los Alamos National Laboratory)

TRU Waste Forms	12. Plutonium Packaging and Long Term Storage J. A. Lloyd, D. E. Wedmen (Los Alamos National Laboratory)
	13. Phase Composition of Murataite Ceramics for Excess Weapons Plutonium Immobilization I. A. Sobolev ¹ , S.V. Stefanovsky ¹ , B. F. Myasoedov ² , Y. M. Kuliako ² , S.V. Yudintsev ³ (¹ SIA Radon, Russia, ² Institute of Geochemistry, Russia, ³ Institute of Geology of Ore Deposits, Russia)
	14. Analysis of Strain Anisotropy in Delta Stabilized Pu-Ga Alloys L. Morales, A. Lawson, J. Kennison (Los Alamos National Laboratory)
	15. Preparation of Actinide Boride Materials via Solid-State Metathesis Reactions and Actinide Dicarbollide Precursors A. J. Lupinetti, J. Fife, E. Garcia, K. D. Abney (Los Alamos National Laboratory)
	16. The Self-Irradiation Driven Enhancement of Diffusion Processes in Nuclear-Safe Ceramics E. A. Smirnov ¹ , L. F. Timofeeva ² (¹ Moscow State Engineering Physics Institute [Technical University], Russia, ² All-Russia Scientific Research A.A. Bochvar Institute of Inorganic Materials, Russia)
	17. The Regularities of Diffusion Processes in the Low-Temperature Phases of Neptunium and Plutonium E. A. Smirnov, A. A. Shmakov (Moscow State Engineering Physics Institute [Technical University], Russia)
	18. Interdiffusion in U–Pu–Zr and U–Zr–Ti Solid Solutions O. A. Alexeev ¹ , A. A. Shmakov ² , E. A. Smirnov ² (¹ All-Russia Scientific Research A. A. Bochvar Institute of Inorganic Materials, Russia, ² Moscow State Engineering Physics Institute [Technical University], Russia)
	19. Fundamental Research on Patterns of Time Behavior of the Structure and Properties of Plutonium Dioxide Produced by Different Process Arrangements L. N. Konovalov, V. A. Zhmak, Ya. N. Chebotarev, A. V. Laushkin, V. Ye. Klepatskiy (A. A. Bochvar All-Russia Scientific Research Institute of Inorganic Materials, Russia)
	20. A Combinatorial Chemistry Approach to the Investigation of Cerium Oxide and Plutonium Oxide Reactions with Small Molecules J. T. Brady, B. P. Warner, J. S. Bridgewater, G. J. Havrilla, D. E. Morris, C. T. Buscher (Los Alamos National Laboratory)
	21. Destruction of Halogenated Organics with Hydrothermal Processing L. A. Worl, S. J. Buelow, D. Harradine, D. Hill, R. McInroy, D. Padilla (Los Alamos National Laboratory)
	22. Preparation of Plutonium-Bearing Ceramics Via Mechanically Activated Precursor S.V. Chizhevskaya, S.V. Stefanovsky (SIA Radon, Russia)
	23. A Single Material Approach to Nuclear Waste Disposal J. V. Beitz and C. W. Williams (Argonne National Laboratory)

- 24. Immobilization Of Pu-Containing Solution Using Porous Crystalline Matrix**
A. S. Aloy, N. V. Sapozhnikova, A.V. Strelnikov, A. G. Anshits, D. A. Knecht, J. Macheret
(Khlopin Radium Institute, Russia)
- 25. Immobilization of Pu-Containing Wastes into Glass and Ceramics: Results of US-Russia Collaboration**
E. B. Anderson¹, A. S. Aloy¹, B. E. Burakov¹, L. J. Jardine²
(¹Khlopin Radium Institute, Russia, ²Lawrence Livermore National Laboratory)
- 26. Performance Evaluation of Pyrochlore Ceramic Waste Forms by Single Pass Flow Through Testing**
P. Zhao¹, W. L. Bourcier², B. K. Esser², H. F. Shaw²
(¹G. T. Seaborg Institute for Transactinium Science, ²Lawrence Livermore National Laboratory)
- 27. Experience of V. G. Khlopin Radium Institute on Synthesis and Investigation of Pu-Doped Ceramics**
B. E. Burakov, E. B. Anderson
(V. G. Khlopin Radium Institute, Russia)
- 28. Absorption Spectra of Plutonium in Phosphate and Borosilicate Glasses**
Yu. A. Barbanel, A. S. Aloy, V. V. Kolin, V. P. Kotlin, A.V. Trofimenko
(V. G. Khlopin Radium Institute, Russia)
- 29. Microstructure and Thermodynamics of Zirconolite- and Pyrochlore-Dominated Synroc Samples: HRTEM and AEM Investigation**
H. Xu¹, Y. Wang²
(¹The University of New Mexico, ²Sandia National Laboratories)
- 30. Electron Microscopy Study of a Radioactive Glass-Bonded Sodalite Ceramic Waste Form**
W. Sinkler, T. P. O'Holleran, T. L. Moschetti
(Argonne National Laboratory)
- 31. Site Preferences of Actinide Cations in [NZP] Compounds**
H. T. Hawkins¹, D. R. Spearing¹, D. M. Smith¹, F. G. Hampel¹, D. K. Veirs¹, B. E. Scheetz²
(¹Los Alamos National Laboratory, ²Pennsylvania State University)
- 32. Actinide-Zirconia Based Materials for Nuclear Applications: Cubic Stabilized Zirconia Versus Pyrochlore Oxide**
P. E. Raison¹, R. G. Haire²
(¹Commissariat à l'Energie Atomique, France, ²Oak Ridge National Laboratory)
- 33. Fundamental Aspects of Actinide-Zirconium Pyrochlore Oxides: Systematic Comparison of the Pu, Am, Cm, Bk and Cf Systems**
R. G. Haire¹, P. E. Raison²
(¹Oak Ridge National Laboratory, ²Commissariat à l' Energie Atomique, France)
- 34. Identification of Source Term of Plutonium in the Environment Around WIPP Site**
B. Hooda, C. Ortiz
(Westinghouse)
- 35. Elimination or Reduction of Magnesium Oxide as the Engineered Barrier at the Waste Isolation Pilot Plant**
M. K. Silva
(Environmental Evaluation Group)

Nuclear Fuels/ Isotopes

- 36. Immobilization of Plutonium-Containing Waste into Borobasalt, Piroxen and Andradite Mineral-Like Compositions**
 Yu. I. Matyunin¹, S.V. Yudintsev², L. J. Jardine³
 (¹SSC RF VNIINM A.A. Bochvar, Russia, ²IGEM RAS, Russia, ³Lawrence Livermore National Laboratory)
- 37. Technology and Equipment Based on Induction Melters with “Cold” Crucible for Reprocessing Active Metal Waste**
 V. G. Pastushkov, A. V. Molchanov, V. P. Serebryakov, T. V. Smelova, I. N. Shestoporov
 (SSC RF VNIINM, Russia)
- 38. Handling Liquid Radioactive Wastes That Contain Ammonium Nitrate**
 V. P. Varykhanov, B. S. Zakharkin, V. S. Kucherenko, V. V. Revyakin, L. N. Solov'yeva
 (A. A. Bochvar All-Russia Scientific Research Institute of Inorganic Materials, Russia)
- 39. The Myth of the “Proliferation-Resistant” Closed Nuclear Fuel Cycle**
 E. S. Lyman
 (Nuclear Control Institute)
- 40. Advanced MOX Fabrication Methods for LWR's**
 D. Haas, J. Somers, C. Walker, S. Brémier
 (Institute for Transuranium Elements, Germany)
- 41. Synthesis of the U.S. Specified Ceramics using MOX Fuel Production Expertise**
V. A. Astafiev, A. E. Glushenkov, V. M. Sidelnikov, G. B. Borisov, O. A. Mansourov
 (A. A. Bochvar All-Purpose Research Institute of Inorganic Materials, Russia)
- 42. Research Program for the 660 Mev Proton Accelerator Driven MOX-Plutonium Subcritical Assembly**
 V. S. Barashenkov, V. S. Buttsev, G. L. Buttseva, S. Ju. Dudarev, A. Polanski, I. V. Puzynin,
 A. N. Sissakian
 (Joint Institute for Nuclear Research, Russia)
- 43. Continuous Process of Powder Production for MOX Fuel Fabrication According to “GRANAT” Technology**
 V. E. Morkovnikov, L. S. Raginskiy, A. P. Pavlinov, V. A. Chernov, V. V. Revyakin,
 V. S. Varikhanov, V. N. Revnov
 (SSC RF VNIINM, Russia)
- 44. Fabrication Technology and Characteristics of AmO₂-MgO Cercer Materials for Transmutation**
 Y. Croixmaire, A. Mocellin, D. Warin
 (Commissariat à l'Energie Atomique, France)
- 45. Analysis Capabilities for Plutonium-238 Programs**
 A. S. Wong, G. H. Rinehart, M. H. Reimus, M. E. Pansoy-Hielvik, P. F. Moniz, J. C. Brock,
 S. E. Ferrara, and S. S. Ramsey
 (Los Alamos National Laboratory)
- 46. Modeling of Fission Gas Release in MOX Fuel Considering the Distribution of Pu-rich Particles**
 Y. H. Koo, B. H. Lee, D. S. Sohn
 (Korea Atomic Energy Research Institute, Korea)

**Separations
and Process
Chemistry**

- 47. Comparative Analysis of Basic Process Arrangements for Converting Surplus Weapons Grade Plutonium to MOX Fuel**
V. P. Varykhanov, E. M. Glagovskiy, B. S. Zakharkin, V. V. Revyakin, O. V. Khauystov
(A.A. Bochvar All-Russia Scientific Research Institute of Inorganic Materials, Russia)
- 48. Gallium Behavior in Molten Salt Processes of Plutonium Conversion into Nuclear Fuel**
V. V. Smolensky¹, A. N. Bove¹, A. G. Osipenko², A. V. Bychkov²
(¹IHTE, Russia, ²RIAR, Russia)
- 49. First Experience on Russian Military Origin Plutonium Conversion into Nuclear Fuel**
A. F. Grachev¹, O. V. Bychkov¹, A. A. Mayorshin¹, V. A. Kisly¹, D. A. Bobrov¹,
A. G. Osipenko¹, L. G. Babikov¹, A. N. Valeyev¹, V. B. Ivanov²
(¹RIAR, Russia, ²MinAtom, Russia)
- 50. Technical Challenges in Support of the Plutonium Materials Conversion Program in Russia**
C. F. V. Mason, S. J. Zygmunt, W. K. Hahn, C. A. James, D. A. Costa, W. H. Smith, S. L. Yarbro
(Los Alamos National Laboratory)
- 51. CHEMOX : An Integrated Facility for the Conversion of Russian Weapon-Graded Plutonium into Oxide for MOX Fuel Fabrication**
E. Glagovskiy¹, Y. Kolotilov², B. Sicard³, F. Josso³, G. Fraize⁴, N. Herlet³, A. Villa⁴, P. Brossard³
(¹A.A. Bochvar, Russia, ²GSPI, Russia, ³CEA, France, ⁴COGEMA, France)
- 52. Radiation-Chemical Behaviour of Plutonium in Solutions DAMP and TOPO in n-dodecane**
D. A. Fedoseev
(SSC A.A.Bochvar All-Russia Research Institute of Inorganic Materials, Russia)
- 53. Dissolution of Phosphate Matrices Based on the Thorium Phosphate Diphosphate**
N. Dacheux¹, A.C. Thomas¹, V. Brandel¹, M. Genet¹, P. Le Coustumer²
(¹Nuclear Physics Institute, France, ²LMGE, France)
- 54. Modelling of Nitric Acid and U(VI) Co-Extraction in Annular Centrifugal Contactors**
E.T. Gaubert¹, M. Jobson¹, J.E. Birket², I.S. Denniss², I. May³
(¹Department of Process Integration, UK, ²Research and Technology, UK, ³BNFL Radiochemistry Center of Excellence, UK)
- 55. The Measurement of U(VI) and Np(IV) Mass Transfer in a Single Stage Centrifugal Contactor**
I. May¹, E.J. Birkett², I.S. Denniss², E.T. Gaubert³ and M. Jobson³
(¹BNFL Radiochemical Centre of Excellence, UK, ²Research and Technology, BNFL Sellafield, UK,
³Department of Process Integration, UMIST, UK)
- 56. Actinide Chemistry in Room Temperature Ionic Liquids**
D. A. Costa, W. H. Smith, K. D. Abney, W. J. Oldham
(Los Alamos National Laboratory)
- 57. Oxidation of Pu(IV) and Pu(V) with Sodium Hypochlorite**
G. R. Choppin, A. Morgenstern
(Florida State University)
- 58. Contribution of the “Simple Solutions” Concept to Estimate Density of Concentrated Solutions**
C. Sorel, P. Moisy, B. Dinh, P. Blanc
(French Atomic Energy Commission, France)

- 59. Structural Studies of f-Element Complexes with Soft Donor Extractants**
M. P. Jensen, A. H. Bond, K. L. Nash
(Argonne National Laboratory)
- 60. Lewis Base Binding Affinities and Redox Properties of Plutonium Complexes**
S. M. Oldham¹, A. R. Schake¹, C. J. Burns¹, A. N. Morgan III¹, R. C. Schnabel², B. P. Warner¹, D. A. Costa¹, W. H. Smith¹
(¹Los Alamos National Laboratory, ²Eckerd College)
- 61. QSAR of Distribution Coefficients for Pu(NO₃)₆²⁻ Complexes Using Molecular Mechanics**
E. Moody
(Los Alamos National Laboratory)
- 62. Materials Compatibility for ²³⁸Pu-HNO₃/HF Solution Containment: ²³⁸Pu Aqueous Processing**
M. A. Reimus, M. E. Pansoy-Hjelvik, G. Silver, J. Brock, J. Nixon, K.B. Ramsey, P. Moniz
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C. V. Philip¹, R. G. Anthony¹, C. Shivraj¹, E. Philip¹, W. W. Pitt¹, M. Roundhill², C. Beard³.
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M. L. Remerowski, J. J. Stimmel, A. S. Wong, K. B. Ramsey
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J. J. Stimmel¹, M. L. Remerowski¹, K. B. Ramsey¹, J. Mark Heslop²
(¹Los Alamos National Laboratory, ²Naval Surface Warfare Center-Indian Head Division)
- 70. Low Temperature Reaction of Reillex φ HPQ and Nitric Acid**
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 R. Long¹, T. T. Liang¹, J. Rogers¹, S. Yarbro²
 (¹New Mexico State University, ²Los Alamos National Laboratory)
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 W. Runde, D. Efurd, M. P. Neu, S. D. Reilly, C. VanPelt, S. D. Conradson
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J. Aupiais¹, N. Dacheux²
(¹Service Radioanalyses Chimie Environnement, CEA, France, ²Institut de Physique Nucléaire, France)
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O. A. Bondarenko¹, Yu. N. Onishchuk², D. V. Melnichuk¹, S. Yu. Medvedev¹, V. M. Petrishin¹
(¹Radiation Protection Institute, Ukraine, ²Kiev National Taras Shevchenko University, Ukraine)
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I. A. Bondarenko, P. B. Aryasov, D.V. Melnichuk, S.Yu. Medvedev
(Radiation Protection Institute, Ukraine)
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N. Trautmann¹, N. Erdmann¹, C. Grüning¹, G. Huber², J. V. Kratz¹, M. Nunnemann²,
G. Passler², A. Waldek¹
(¹Institut für Kernchemie, Universität Mainz, Germany, ²Institut für Physik, Universität Mainz, 55099 Mainz, Germany)
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T. J. Piper, D. S. Shaw, P. Roussel, D. A. Geeson
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J. V. Beitz, C. W. Williams
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C. G. Worley, G. J. Havrilla
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 N. Guilbaud¹, D. Blin¹, P. Pérodeaud¹, C. Guéneau², O. Dugne¹.
 (¹DCC/DTE/SIM-CEA, France, ²DCC/DPE/SPCP-CEA, France)
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 P. Kockerols, F. De Smet, A. Vanderghenst
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 J. Vandezande, H. Pauwels, A. Vanderghenst
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 M. N. Jasperson, L. R. Drake
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 J. Rebizant, E. Bednarczyk, P. Boulet, C. Fuchs, F. Wastin
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 H. Nakahara¹, K. Sueki¹, K. Akiyama¹, Y. L. Zhao¹, Y. Nagame², K. Tuskada²
 (¹Tokyo Metropolitan University, Japan, ²Japan Atomic Research Institute, Japan)
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 (¹The University of New Mexico, ²Sandia National Laboratories)

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Actinide Compounds & Complexes

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 J. Terry¹, R. K. Schulze¹, T. G. Zocco¹, J. D. Farr¹, J. Archuleta¹, M. Ramos¹, R. Martinez¹, B. Martinez¹, R. Pereya¹, J. Lashley¹, S. Wasserman², M. Antonio², S. Skanthakumar², L. Soderholm²
 (¹Los Alamos National Laboratory, ²Argonne National Laboratory)
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 J. D. Farr, R. K. Schulze, M. P. Neu, L. A. Morales
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 S. Heathman¹, R. G. Haire², T. Le Bihan³, A. Lindbaum¹, K. Litfin¹, Y. Meresse¹
 (¹European Institute for Transuranium Elements, Germany, ²Oak Ridge National Laboratory, ³European Synchrotron Radiation Facility, Grenoble, France)
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 M. P. Wilkerson^{1,2}, C. J. Burns¹, D. E. Morris¹, R. T. Paine², B. L. Scott¹
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 J. H. Matonic¹, M. P. Neu¹, B. Scott¹, M. Mazzanti²
 (¹Los Alamos National Laboratory, ²Laboratoire de Reconnaissance Ionique, CEA-Grenoble)
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 (Commissariat à l'Energie Atomique CEA/Valrho, France)
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 P. M. Briggs Piccoli¹, R. F. Hess², K. D. Abney², J. R. Schoonover², P. K. Dorhout^{1,2}
 (¹Colorado State University, ²Los Alamos National Laboratory)
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 D. Labroche, D. Pisson, P. Ramel, O. Dugne
 (Commissariat à l'Energie Atomique CEA/Valrho, France)
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 H. Xu¹, Y. Wang²
 (¹The University of New Mexico, ²Sandia National Laboratories)
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 (Department of Nuclear Engineering and Radiological Sciences, University of Michigan)
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 (¹Los Alamos National Laboratory, ²Ernest Orlando Lawrence Berkeley National Laboratory, ³Lawrence Livermore National Laboratory)
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 F. Wastin¹, E. Gomez-Marin¹, D. Bouexiere¹, J. C. Spirlet¹, and J. M. Fournier²
 (¹European Commission, Joint Research Centre, Institute for Transuranium Elements, Germany, ²Université Joseph Fourier, Laboratoire LIME, France)
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 (¹Los Alamos National Laboratory, ²SUNY Buffalo)
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 T. Huntley, K. Johnson, D. Olivas, R. Mulford, W. Brown, K. Walter, M. Stout
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 R. N. Mulford, M. Valdez
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B. A. Nadykto
(RFNC-VNIIEF, Russia)

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J. C. Boettger¹, A. K. Ray²
(¹Los Alamos National Laboratory, ²Department of Physics, University of Texas)

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D. L. Olson, G. R. Edwards, D. E. Dooley
(Colorado School of Mines)

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John Wills¹, Olof R. Eriksson², Heinrich Roder¹
(¹Los Alamos National Laboratory, ²Uppsala University, Sweden)

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D. Dooley, B. Martinez, D. Olson, D. Olivas, R. Ronquillo, T. Rising
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F. Freibert, B. Martinez, J. P. Baiardo, J. D. Olivas, R. Ronquillo
(Los Alamos National Laboratory)

REGISTRATION

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